



Chapter 9

A Bibliometric Review of Studies on the Application of Augmented Reality to Cultural Heritage by Using Biblioshiny and CiteSpace

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ABSTRACT

Augmented reality (AR) technology is an effective way to transmit and protect tangible and intangible cultural heritage. It is crucial to research the connections between these two aspects and associated problems to support the preservation and sustainable development of cultural assets. This chapter aims to examine the evolution of the application of augmented reality to cultural heritage. It intends to comprehend these tendencies worldwide and offer suggestions for their expansion and development. The objectives were accomplished using a quantitative approach incorporating bibliometric analysis using Biblioshiny and CiteSpace. The findings of this research include an overview of the institutions, nations/regions, journals, and authors who have produced the most in the area. The significance of the study can be observed in its contribution to a deeper comprehension of the global development of cultural heritage.

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1. INTRODUCTION

Cultural heritage is a multidisciplinary field that has attracted the attention of an increasing number of researchers in the last few decades. According to Kuutma (2009), cultural heritage provides humanity with the potential to acquire social and political assets while also providing a path for economic development and playing an essential role in the politics of different countries. It is also the most powerful record and evidence of human development.

The term “heritage” dates to the 1970s in Europe and refers specifically to things inherited from ancestors. In earlier times, heritage mainly referred to tangible, historical, and human sites (Prentice, 1993). By the 1980s, it was recognised that heritage included not only tangible cultural heritage but also intangible cultural heritage. The concept of cultural heritage first appeared in the 1972 Convention Concerning the Protection of the World Cultural and Natural Heritage, published by the United Nations Educational, Scientific and Cultural Organization (UNESCO), which focuses on tangible cultural heritage (Gruber, 2017). The Convention for the Safeguarding of Intangible Cultural Heritage, adopted by UNESCO (2003), provides additional clarification of the concept of cultural heritage. The concept of “intangible cultural heritage” has since been standardised.

With the development of science and technology, scholars have gradually noticed the application of digital technology to tangible and intangible cultural heritage (Mendoza et al., 2023). The integration of information technology with tangible and intangible cultural heritage has reshaped the historical appearance and presentation modes of cultural sites, and technology has become a major driving factor in the management of cultural organisations, the innovation of cultural industries, and the stimulation of interest.

In recent years, emerging technologies such as the Internet of Things (IoT), Artificial Intelligence (AI), AR/VR, and Big Data have driven the development of cultural heritage research and expanded the horizons of human cognition (Mendoza et al., 2023). AR (Augmented Reality) is a technology under this background demand, and its core idea is to superimpose virtual information in three-dimensional physical space, integrate time and space, and then enhance the user’s real-time interactive experience (McLean & Wilson, 2019). Especially given the incompleteness of the original physical structure of the cultural heritage and the implicitness of the display of historical information, the use of AR technology to reconstruct historical buildings and show historical and cultural connotations has become an important focus and breakthrough to promote the promotion and development of the cultural industry (De Paolis et al., 2023). In a study conducted by De Paolis et al. (2023), the researchers investigated the relationship between mental effort, usability, and user experience in augmented reality-based digital storytelling. Their specific case

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